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*Your attention is invited*

**NEWS  
OF THE  
HIGHWAY  
DIVISION  
OF  
ASCE**



JOURNAL OF THE HIGHWAY DIVISION  
PROCEEDINGS OF THE AMERICAN SOCIETY OF CIVIL ENGINEERS



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## DIVISION ACTIVITIES HIGHWAY DIVISION

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### Proceedings of the American Society of Civil Engineers

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#### NEWS

June, 1961

#### ACTIVITIES OF THE COMMITTEE ON PIPELINE CROSSINGS

By regular correspondence and annual meetings, this committee has been analyzing the policy and practice of the several States with respect to engineering requirements of highway agencies for design, construction, operation, maintenance, replacement and duplication of pipelines crossing under highways.

From survey information, policy and practice appears to vary over a much wider range than might be accounted for by geographical and climatic differences. On the hypothesis that low requirements reflect a lag behind upgrading of other highway standards, and that high requirements have been established arbitrarily on the safe side, the committee has been studying basic factors pertinent to specification of requirements, with the objective of deriving a rational practice.

At its meeting in Dallas January 16-17, 1961, the committee concluded its analysis of requirements for depth of cover over pipelines, agreed on the basic factors which may warrant encasement of pipelines, and attained preliminary opinion on bedding and backfill specifications. It ordered preparation and release of a progress report covering these findings and a compilation of survey data and tentative opinion on six other topics. It is expected that this report will be published in September, 1961.

The committee sponsored a session program at the Phoenix Convention on April 12, for which it adopted "Encasement of Pipelines" for its theme. The program was jointly sponsored by a parallel committee in the American Water Works Association, which presented a paper on encasement of water lines.

Personnel of the committee is: Hubert H. Brown, Engineer of Materials, Arizona Highway Department, Douglas B. Fugate, Chief Engineer, Virginia Department of Highways, Talbot S. Huff, Engineer of Road Design, Texas Highway Department, Sylvester E. Ridge, Special Programs Coordinator, Bureau of Public Roads, and R. Robinson Rowe, Principal Bridge Engineer (Retired), California Division of Highways. Messrs. Brown, Ridge and Rowe are also members of the Committee on Pipeline Crossings of Railroads and Highways

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of the Pipeline Division and contribute highway viewpoint to its formulation of industry standards.

R. Robinson Rowe, Chariman

### "HIGHWAYS FOR THE FUTURE"

is the title of a 10-page pamphlet which summarizes a 400-page study conducted for the Automobile Manufacturers Association on the nation's future requirements for arterial highways and urban public transit facilities. Extra copies of the pamphlet are available on request from:

Automobile Manufacturers Association, Inc.  
320 New Center Building  
Detroit 2, Michigan

Some excerpts follow:

"Virtually all population growth of the next two decades will be in suburban portions of metropolitan areas. By 1980, three of every four of the nation's anticipated 245 million people will be urbanites—and over half of the nation's populace will live in suburbia. Most new growth will be at population densities of approximately 2,500 people per square mile. This will about double the amount of land located within expanded urban limits by 1980."

"Average vehicle trip lengths in the survey cities are expected to increase from almost 4.5 miles at present to more than 5.0 miles by 1980."

"About 2,100 miles of urban Interstate system freeways were in use early in 1961. Other urban freeways not on the system brought the total of existing urban freeways to approximately 2,900 miles."

"By 1980, average daily traffic on urban Interstate system routes will approximate 50,000 vehicles per mile, compared to 10,000 anticipated on rural Interstate freeways. Many urban Interstate routes will be operating at capacity whereas most of the rural Interstate routes will have surplus capacity for future traffic growth."

"There is urgent need for completion of the 41,000-mile National System of Interstate and Defense Highways."

"Interstate highways now programmed will not be sufficient to meet the nation's future freeway needs. Accordingly, a continued and accelerated program of express highway construction, particularly in urban areas, should follow completion of the Interstate system in 1972."

### FIRST WORLD TRAFFIC ENGINEERING CONFERENCE

The first World Traffic Engineering Conference is to be held in Washington in August this year with an expected attendance of more than 1,000 delegates from the United States and abroad.

This unique conference will include the 31st Annual Meeting of the Institute of Traffic Engineers, and an International Study Week in Traffic Engineering, plus a week's planned bus tour of highway facilities and traffic control devices in the Middle Atlantic and New England states. Also in prospect is a seminar for traffic experts from the 21 countries of the Americas under sponsorship of the Organization of American States—Pan American Union.

The meeting will be held from August 21 through 26.

The sponsoring organizations are the Institute of Traffic Engineers and the Joint Committee on International Weeks for Traffic Study. The latter organization is made up of representatives of the World Touring and Automobile Organization, the Permanent International Association of Road Congresses and the International Road Federation.

Opening three days of the Conference will be devoted to the Annual ITE meeting and the final three days to International Sessions.

Prominent traffic authorities in Europe, Canada, and Latin America already have been invited to speak at the Conference or to participate as members of panels which will discuss problems of international interest.

The Conference is expected to draw attendance from Western Europe, Russia, the Orient, Japan, Latin America, Canada, Australia and New Zealand.

Only one theme—Objectives in the Development of Metropolitan Areas—will be developed at the opening day of the Institute meeting. Noted authorities will discuss this topic from the social, political, economic, planning and architectural aspects.

During the two days of the ITE meeting there will be concurrent sessions of the organizations Departments on Administration, Application of Devices, Planning, Operations, Design, and, Equipment and Materials and to technical committee sessions.

During the three days of International Sessions six themes will be developed. They are: The Need for Scientific Research in Traffic Engineering and the Desirability of International Cooperation in Promoting It: Urban Transportation and its Future; Design of Interchanges on Rural Freeways; Research into Highway Traffic Accidents; Use of Electronics in Traffic Control; and, Freeway Operation. Speakers from 15 nations are scheduled to appear on the program.

There will be opportunity for group discussion at each session, in addition to talks by internationally recognized authorities and research reports.

Social activities and special programs for the wives of delegates to the Conference also are planned.

As more detailed program information is developed it can be obtained in the United States from David M. Baldwin, Executive Secretary, Institute of Traffic Engineers, 2029 K Street, N. W., Washington 6, D. C., and in Europe from M. H. Perlowski, World Touring and Automobile Organization, 32 Chesham Place, London, S. W. 1, England.

#### FEBRUARY, 1962, CONVENTION

Mr. T. S. Huff, Chief Engineer of Highway Design, Texas Highway Department, Austin 14, Texas, has taken on the job of chairman for our session programs at the Society convention to be held in Houston, Texas, February 19-23, 1962.

#### COMMITTEE ON HIGHWAY DRAINAGE STRUCTURES

Preliminary results of a recent questionnaire survey have brought out the following interesting facts:

In 75% of states hydraulic design is largely a function of bridge and/or road design sections, with major structures in "bridge" and minor structures in "road design."

Twelve states have a hydraulics or drainage engineer who may or may not head a hydraulics or drainage section attached to bridge or road design.

26 employ engineers especially trained in hydraulics, though largely through experience.

22 do not employ engineers especially trained or assigned to this activity.

14 indicated a desire to add or consider adding hydraulics engineers to staff.

Judging from questionnaires, those states most in need of hydraulics engineers didn't feel they needed any.

35 states have no drainage manual.

10 have prepared manuals and 6 submitted.

7 plan to have or have manuals in preparation.

Most states refer to BPR charts, USGS WSP's, local runoff formulae or charts, as well as manufacturers' handbooks and standard texts. Most states use BPR runoff curves, rational method, and SCS for Qdes for small drainage areas, or USGS flood-frequency curves or locally developed curves for intermediate and larger streams. Significant that 12 states mentioned Talbot's Formula.

Inquiry on runoff design frequencies received a wide range of answers and a surprising lack of conformance with BPR criteria.

However, most states use 50-year for Interstate and Primary bridges and culverts, 25-year for secondary.

Reports indicate bridges best engineered hydraulically of all drainage structures, with many states using backwater method of analysis. Still many states rely on judgment and observed performance.

Fairly reliable data from 29 states with annual drainage expenditures varying from 3.1 to 20% (Nebraska est. at 30%).

Generally—plain and lake states had lowest percentages and mountainous states highest percentages.

From Highway Statistical and Financial Data for 1957-60, average annual construction expenditures all highway systems = \$5,450 million. At 8.8%, average annual expenditures for drainage, exclusive of bridges = \$480 million.

#### NEW COMMITTEE ON TERMINALS

##### Purpose and policy:

To study and evaluate developments, and make recommendations concerning all facets of transportation terminals, including location, layout and financial feasibility. The committee shall recommend to the Executive Committee a course of action.

**Membership:**

Edward G. Wetzel, Ch.; Gerald R. Cysewski, Lawrence A. Dondanville, John B. Ecker, John C. Kohl, Philip M. Linscott.

**NEW COMMITTEE ON MASS TRANSPORTATION****Purpose and policy:**

To study and evaluate developments, and make recommendations concerning all facets of mass transportation. The committee will report its findings to the Executive Committee of the Highway Division.

**Membership:**

William R. McConochie, Ch.; S. T. Hitchcock, Robert A. Keith, Norman Kennedy, Roger F. Nusbaum, Ralph L. Wood.

**COMMITTEE ON MAINTENANCE AND OPERATION**

The committee recommended, at its November meeting, that responsible Federal and State authorities give further consideration to the orderly provision, as an integral part of the Interstate system, of service areas providing at least gasoline and general service station facilities, restrooms and food service (at least of the lunch counter type). Provision for emergency services for disabled vehicles were also recommended.

**COMMITTEE ON GEOMETRICS OF HIGHWAY DESIGN**

The committee strongly endorsed the report of the American Association of State Highway Officials Special Freeway Study and Analysis Committee, published in February, 1960, and recommended that additional studies of this nature be made from time to time by all engineering and highway groups dealing with freeways.

**Possible Future Committee Activities:**

1. The general location of freeway routes either as penetrating or bypassing cities and the consequent effects on the major Geometrics of their Design.
2. The co-ordination of vehicle design with highway design.
3. Possibilities for developing separate highways for trucks and passenger cars in the certain traffic corridors where heavy volume of truck traffic prevails.
4. Highway design clearances as made necessary for missile carriers.

**CERTIFICATES OF APPRECIATION**

will be awarded to each of the outgoing members of the Technical and Administrative Committees of the Highway Division upon completion of their terms of office, as a result of a recent decision of the Executive Committee.

**5TH INTERNATIONAL CONFERENCE ON SOIL MECHANICS**

Study Abroad, Inc., is offering a five week European tour that provides for attendance at the Fifth International Conference on Soil Mechanics and



Foundations in Paris July 17-20. After a week in France the tour moves on to the Road Research Laboratory at London then to Holland for a study of dike planning and construction. Cold climate engineering at Oslo is investigated enroute to Russia via Helsinki. Reconstruction of World War II devastated areas will be seen at Leningrad and soils people will hear about vibration driving of piles at the Academy of Construction and Architecture in Moscow.

Returning via Vienna the tour group will learn about unusual foundations at Venice and Pisa. Modern dams and ancient engineering will also be seen in Italy. Engineering works and laboratories in Spain and Portugal will be visited enroute home.

At the week-long Fifth International Conference on soils in Paris widely known experts from all parts of the world will present papers and discussions. All new developments since the Fourth World Soils Conference in London in 1957 will be covered. Research results in testing and new testing methods as well as equipment will be fully reported. English is one of the official languages of the conference.

Hal Hunt, construction engineer and Editor of CIVIL ENGINEERING and M. D. Morris, soils consultant and author, are co-directors of the tour. Both have had extensive travel and engineering experience and can point out usable ideas in every operation visited. The tour is managed by Study Abroad, Inc. who have supervised successful study group travel for Temple University and others for several years.

Address inquiries to: Study Abroad, Inc.  
250 West 57th Street  
New York 19, New York

#### GEORGIA TECH ANNOUNCES COMBINED PROGRAM

The Georgia Institute of Technology authorized on January 16, 1961, as an addition to its existing Masters' degree programs in City Planning and Civil Engineering, a combined two-year program leading to two degrees—Master of City Planning and either Master of Science in Civil Engineering or Master of Science (undesignated) depending upon the background of the student. The new program will be offered for the first time in the fall quarter of 1961.

The purpose of the program is to meet the rapidly growing need of planning agencies and highway departments for men who combine competence in city and regional planning and transportation engineering.

Candidates for this new program will be limited to students who hold a Bachelor's degree in engineering, mathematics, or physical science with considerable mathematics.

Additional information about this new program may be obtained from either:

Howard K. Menhinick  
Regents' Professor of City Planning  
or  
Dr. Donald O. Covault  
Associate Professor of Civil Engineering  
Georgia Institute of Technology  
225 North Avenue, N. W.  
Atlanta 13, Georgia



## PERTINENT PUBLICATIONS

Freeway Operations

Institute of Traffic Engineers, 2029 K Street NW Washington 6 D. C. 88 pp. \$1.00 (reduced price for quantity purchases).

This book is a report on the 12 seminars conducted in 1958 and 1959 by the Institute of Traffic Engineers in all parts of the country on the subject of freeway operations.

The seminars recognized that the growing mileage of freeways, or roadways with full-controlled access, presents traffic and highway engineers, planners, police and many other officials with new operational problems. The book follows the general pattern of the seminars, and discusses these problems under the following heading:

1. The freeway Concept
2. Driver Characteristics and Training
3. Speed Characteristics
4. Accidents
5. Regulations and Regulatory Signs
6. Directional Signs
7. Geometric Design Elements
8. Freeway Connections
9. Traffic Operation During Construction
10. Motorist Services
11. Police and Emergency Services
12. Freeway Maintenance
13. The Future Operational Challenge

The publication contains many recommendations growing out of the discussions at the seminars. On controversial points, an attempt is made to present both side of the argument. The book is well-illustrated and documented wherever possible with the most current data.

An Introduction to Transportation Engineering

By William H. Hay, John Wiley & Sons, Inc. 440 Park Avenue South, New York 16, New York. 454 pp. plus Appendices—February, 1961. \$11.75.

The purpose of this book is to bridge the gap in transportation textbook material regarding those factors and principles that have to do with the technological utility of the various modes of transport in moving persons and goods. Although much has been written on the structural design and formation of plant and equipment as well as the economics and regulatory aspects of the transportation industry, the author feels that the intermediate area of technological use and utility has been largely ignored. This book is an introduction to this intermediate area between structural design and economic function.

The subject matter of this intermediate area is the effect of technological factors on movement and the principles involved. The topics covered include the propulsive resistance encountered by all modes of transport and the propulsive force that must be exerted to overcome it. Operating characteristics and criteria as they determine the suitability of a particular mode of transport are considered, as are route and traffic capacity, in determining transport utility. Frequently overlooked factors of terminals, coordination, operational

control and the effects of all the foregoing characteristics on cost are discussed. Finally, the significance of these factors in planning, an element of fundamental importance in developing economical and useful transportation, is explored.

Chicago Area Transportation Study Report, Volume II—Data Projections.

Chicago Area Transportation Study, 4812 West Madison Street, Chicago 44, Illinois. July, 1960. 100 pp. plus appendix.

This second volume of the report of the Chicago Area Transportation Study is concerned with estimating the amount, kind and location of travel likely to take place within the Chicago area in the year 1980. Estimating future travel demands is a prerequisite to the preparation of a long-range plan for improving transportation facilities, which is the Study's basic objective.

The estimates reported here are based primarily upon data from the inventories of the metropolitan region which were taken in 1956. The inventories were taken to explain the characteristics of current daily travel and the findings are reported in Volume I. The third and final volume of this series will be devoted to the development of a comprehensive transportation plan designed to satisfy, as well as possible, the future demands for transportation services which are estimated here.

MEETING CALENDAR

ASCE MEETINGS—1961

October 16-20	Annual Convention, New York Hotel Statler
	1962
February 19-23	Houston Convention Hotel Shamrock, Houston, Texas
May 14-18	Omaha Convention Sheraton-Frontenelle Omaha, Nebraska

NON-ASCE MEETINGS—1961

July 4-7	National Society of Professional Engineers 27th Annual Meeting Olympic Hotel Seattle, Washington
July 17-22	International Society of Soil Mechanics and Foundation Engineering Fifth International Conference Paris, France
August 21-26	World Traffic Engineering Conference 31st Annual Meeting—Institute of Traffic Engineers & 6th International Study Week in Traffic Engineering Sheraton-Park Hotel Washington, D. C.

## DEADLINE FOR SEPTEMBER 1961 NEWSLETTER:

AUGUST 15, 1961

Send contributions to the Newsletter Editor:

Edmund J. Cantilli  
Room 1202  
The Port of New York Authority  
111 Eighth Avenue  
New York 11, New York

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TO ASCE MEMBERS OF CHI EPSILON

Chi Epsilon Fraternity, national civil engineering honor society, has officially offered to supply the funds necessary to furnish a formal Conference Room at the United Engineering Center. This room will be on the ASCE executive floor, will be named "The Chi Epsilon Room," and will be available for conference and committee meetings.

Pledges are not expected, but single voluntary gifts, from members and friends of the Fraternity are earnestly solicited. An attractive Commemoration Book has been planned in which donors of \$100 or more (singly or in groups) may inscribe the name of a revered person.

On request, the national chairman, Samuel Kramer (8701 Shore Road, Brooklyn 9, New York) will be glad to mail a descriptive brochure. Your gift is tax deductible if you make your check out to "ASCE CHI EPSILON ROOM FUND" and mail it to Mr. Donald D. King, ASCE, 33 West 39th Street, New York 18, N. Y. Your gift will be automatically credited to the quota of your initiating Chapter. The national goal is \$10,000.

CUMULATIVE INDEX TO ASCE PUBLICATIONS

A three-part index to Proceedings Transactions, and CIVIL ENGINEERING is now available. This 816-page, 6 in. by 9 in., blue cloth bound book contains a subject and name index for CIVIL ENGINEERING that covers the magazine since its inception in 1930 through 1959. For Proceedings the coverage is from 1950 through 1959, a period in which most papers were not included in Transactions. The 1935 through 1959 Transactions are indexed to provide a valuable source of reference to "modern" technical civil engineering literature.

The list price for this volume is \$20.00. Members of ASCE and public and school libraries are entitled to a 50% discount and will, therefore, pay \$10.00 per volume.

Order your copy of this INDEX by use of the coupon herewith.

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## BIBLIOGRAPHY ON AIRPORT ENGINEERING

This comprehensive "Bibliography on Airport Engineering" chronicles and catalogs the engineering knowledge and experience that has appeared in papers, articles, and reports in the publications of the free world from 1938 to 1959. The Bibliography has grown out of the file maintained by the author, Shu-t'ien Li, F. ASCE, and has been augmented and verified in technical libraries in the United States.

ASCE publication, 1960-41, is divided into 26 chapters and has a total of 2,335 entries. The subjects covered are, in part, location and planning, design and maintenance, earthwork, drainage, pavements (both rigid and flexible), lighting, hangars, heliports, and unit costs. Of special importance at this time is a chapter (with 169 entries) dealing with launching bases, space stations, and allied subjects.

The list price for this 184-page hard-bound book is \$8.00; ASCE members and libraries receive a 50% discount. The coupon herewith should be used to order this book.

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